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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/680,688	10/07/2003	Jiang Hsieh	136120 CT	6230

7590 05/13/2005

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St. Louis, MO 63102

EXAMINER

KAO, CHIH CHENG G

ART UNIT	PAPER NUMBER
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2882

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/680,688	Applicant(s) HSIEH ET AL.	
	Examiner Chih-Cheng Glen Kao	Art Unit 2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 5-17 and 19-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 5-14 and 19-28 is/are allowed.
- 6) ☒ Claim(s) 1-3 and 15-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

1. The drawings were received on 4/22/05. These drawings are acceptable.

Specification

2. The disclosure is objected to because of the following informality, which appears to be a minor draft error.

In the following format (location of objection; suggestion for correction), the following corrections may obviate their respective objections: (abstract, line 1, "Some configurations of the present invention thus provide"; replacing "Some configurations of the present invention thus provide" with - -The present invention provides- -).

Note that although Applicants appear to have attempted to correct the above objection, the separate sheet for the abstract without the revision marks created ambiguity. The separate sheet filed 4/22/05 did not show the changes obviating the above objection. Therefore, appropriate correction is still required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 15, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al. (US Patent 5073911) in view of Hu (US Patent 5377250) and Kinsinger (US Patent 6185271).

4. Regarding claims 1 and 15, Ozaki et al. discloses a method and apparatus for dynamically helically scanning (fig. 2, and col. 2, lines 28-29) an object (fig. 1, "P") on a moving table (fig. 1, #11) utilizing a scanning imaging system (col. 1, lines 9-13); acquiring and storing projection views (col. 1, lines 65-67, and col. 3, line 18) of the object and corresponding table locations (col. 3, line 22-25), selecting a plane for reconstruction (col. 6, line 26) of an image of the object, utilizing stored table locations to determine geometric variables applicable to the stored projection views (col. 4, line 22); and processing the stored projection views utilizing the geometrical variables to reconstruct an image of the object at the reconstruction plane (col. 4, lines 53-59).

However, Ozaki et al. does not disclose filtering and backprojecting, and utilizing feedback based on measured projections to adjust table speed during scanning to obtain contrast enhancement.

Hu teaches filtering and backprojecting (cover page figure). Kinsinger teaches utilizing feedback based on measured projections (col. 7, line 64, to col. 8, line 20) to adjust table speed (col. 5, line 14-20) during scanning, which would necessarily obtain contrast enhancement due to the slower table speed.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and apparatus of Ozaki et al. with the filtering

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and backprojecting of Hu, since one would be motivated to make such a modification to display a clearer image of the internals of a patient.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and apparatus of Ozaki et al. with the feedback of Kinsinger, since one would be motivated to make such a modification to get higher resolution detailed images of the object of interest (col. 5, lines 14-20) as implied from Kinsinger for a better image.

5. Regarding claims 3 and 17, Ozaki et al. further discloses a computed tomographic imaging system (title).

6. Claims 2 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ozaki et al., Hu, and Kinsinger as applied to claims 1 and 15 above, and further in view of Johnson et al. (US Patent 5891030).

Ozaki et al. as modified above suggests a method and apparatus as recited above.

However, Ozaki et al. does not disclose a magnetic resonance imaging system.

Johnson et al. teaches the art-recognized equivalency of computed tomography and magnetic resonance imaging systems (col. 5, lines 16-29).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method and apparatus of Ozaki et al. as modified above with the magnetic resonance imaging system of Johnson et al., which is explained with motivation as follows. Because these two imaging systems were art-recognized equivalents at

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the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute one for another. One would be motivated to make such a modification to avoid the x-rays in a computed tomography system, which could lead to unwanted cellular damage.

Allowable Subject Matter

7. Claims 5-14 and 19-28 contain allowable subject matter.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 5 and 19, prior art does not disclose or fairly suggest a method or imaging apparatus configured for dynamically helically scanning; acquiring and storing projection views of an object and, for only some of the acquired projection views, corresponding determined or estimated table locations; utilizing stored table locations to determined geometric variables applicable to the stored projection views; and filtering and backprojecting the stored projections views utilizing the geometrical variables to reconstruct an image of the object at a reconstruction plane, in combination with all the limitations in each respective claim. Claims 6-14 and 20-28 contain allowable subject matter by virtue of their dependency.

Response to Arguments

8. Applicant's arguments with respect to claims 1-3 and 15-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

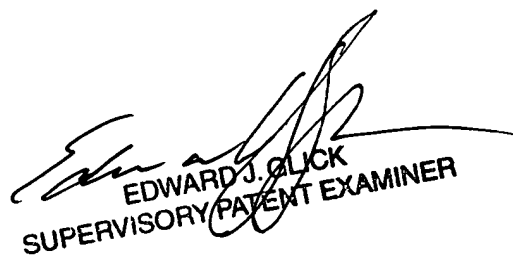
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER



TITLE: METHODS AND APPARATUS FOR DYNAMICAL HELICAL SCANNED IMAGE PRODUCTION

INVENTOR: JIANG HSIEH, et al.

SERIAL NO.: 10/680,688; DOCKET NO.: 136120 CT

ATTORNEY: ALAN L. CASSEL; PHONE: (314) 621-5070

REPLACEMENT SHEET

2/4

100 →

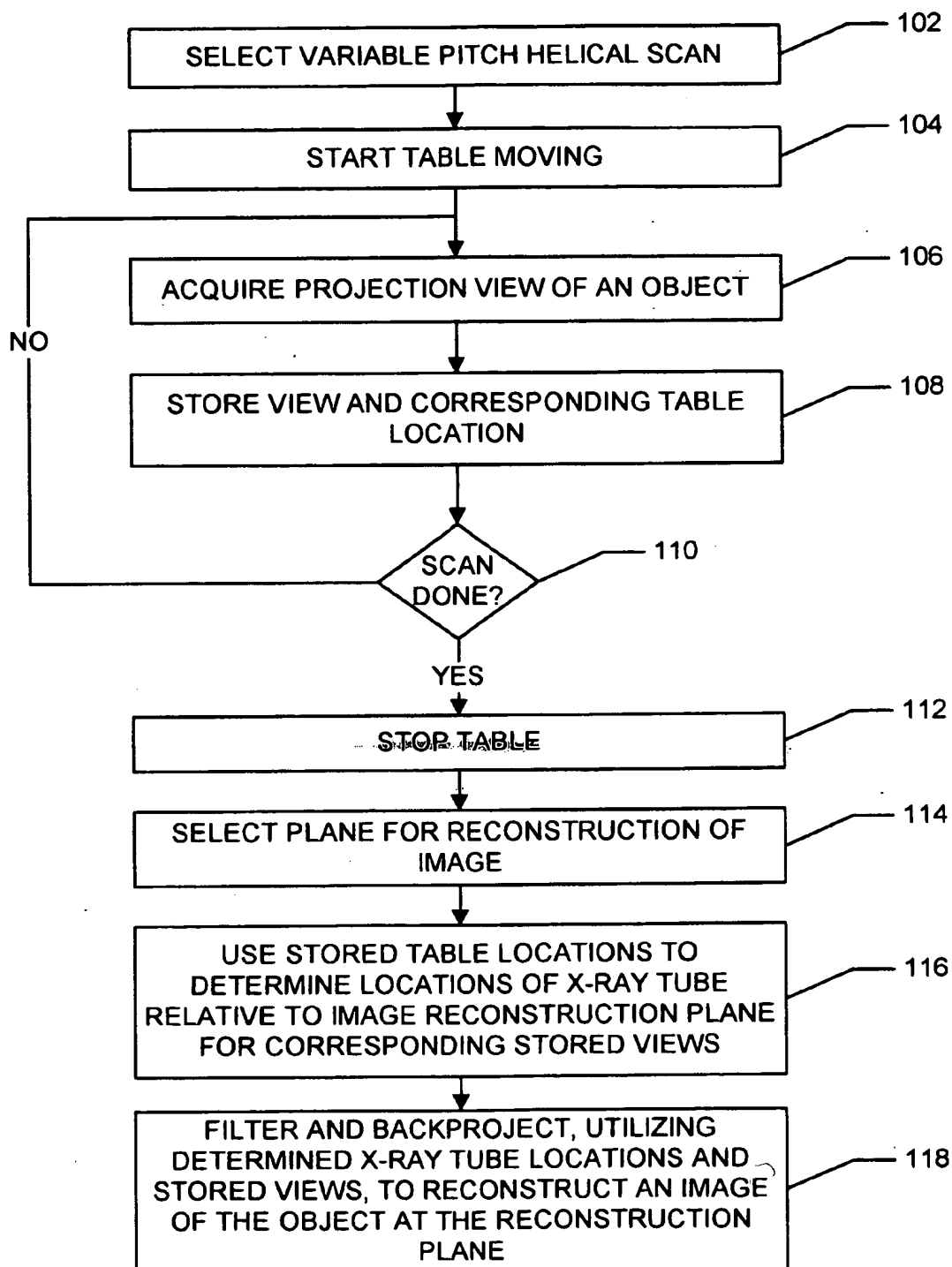


Fig. 3

200 →

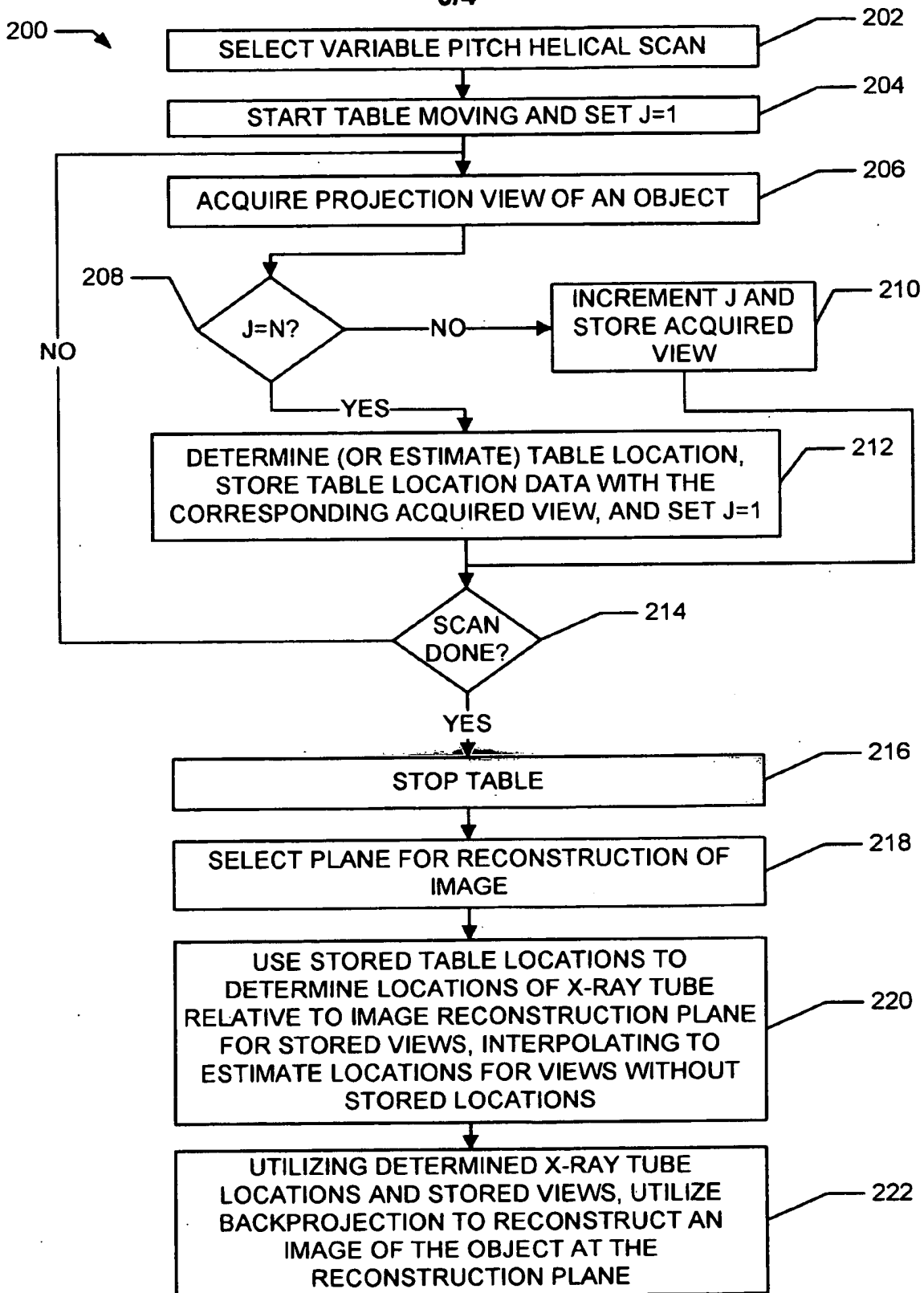


Fig. 4

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Approved
CK
8/4/05

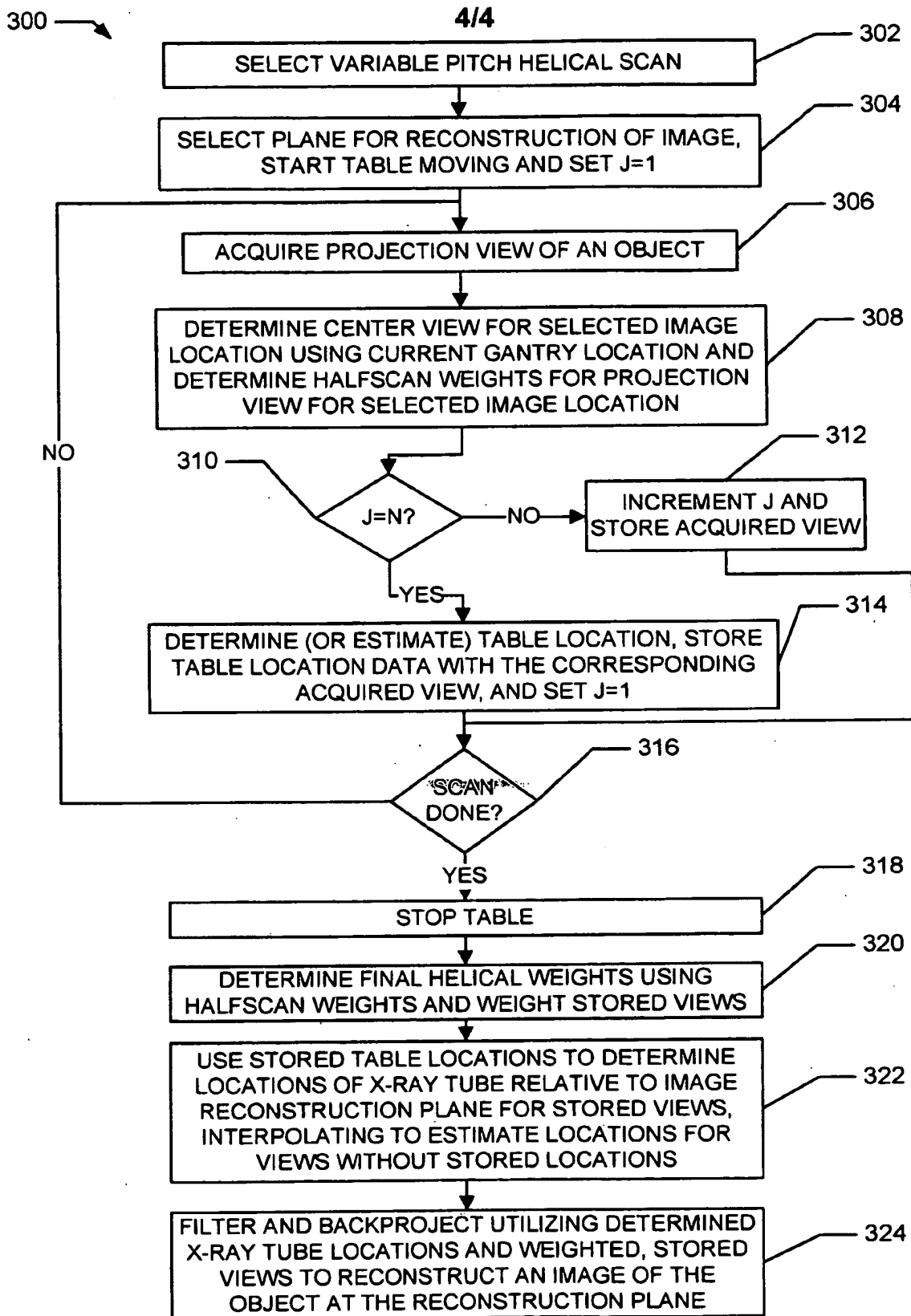


Fig. 5

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